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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,263	09/06/2006	Michel Strebelle	285333US0PCT	4439
22850	7590	06/17/2009	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			MICALI, JOSEPH	
			ART UNIT	PAPER NUMBER
			1793	
			NOTIFICATION DATE	DELIVERY MODE
			06/17/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/567,263	<b>Applicant(s)</b> STREBELLE, MICHEL	
	<b>Examiner</b> Joseph V. Micali	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 10-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/9/09</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Status of Application*

Claims 10-23 are pending and presented for examination on the merit. The previous objection to the specification has been withdrawn in light of applicant's amendments.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 10-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No. DE 24 38 153 by Vollheim et al, in view of US Patent No. 2,368,507 by Welty, Jr.**

With respect to claims 10-12 and 18, Vollheim teaches a process where acetylene, from dehydrochlorination of 1,2-dichloroethane (DECa), was selectively hydrogenated to C<sub>2</sub>H<sub>4</sub> over a

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fixed bed Pd-SiO<sub>2</sub> catalyst of low porosity with a gas mixture over 99.5% HCl, where processed gases were suitable for recycling and the catalyst was very easily regenerated (**Abstract**).

Vollheim, however alluding to and requiring catalyst regeneration, does not explicitly describe the process of thermal treatment in the presence of oxygen at a temperature between 300 and 700° C.

Welty, Jr. teaches a process for regenerating a catalyst, comprising any number of catalytic metals and inert supports (**column 1, lines 23-36**) by thermal treatment in the presence of oxygen (**claim 1**). Welty teaches a thermal treatment process ranging starting from 500 to under 1200° F, specifically a range of 1050-1100° F, or 566-593° C (**column 4, lines 64-68**).

Volheim teaches the above hydrogenation process including catalyst regeneration while Welty, Jr. discloses a process of regenerating catalysts similar to the ones used by Vollheim, wherein the regeneration is carried out by heating the catalyst in the presence of oxygen up to a temperature of 1050-1100° F, or 566-593° C. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Volheim such that the catalyst is regenerated by heating the catalyst in the presence of oxygen up to a temperature of 1050-1100° F, or 566-593° C, in view of the teachings of Welty, Jr. The use of this manner of regeneration in the process of Vollheim would be the obvious use of one of the limited number of catalyst regeneration methods known in the art and would merely provide the expected regeneration of the hydrogenation catalyst.

With respect to claim 13, Vollheim discloses an inert support with BET surface area of less than 5 m<sup>2</sup>/g (**pg 3, second paragraph, and translation, pg. 2, third paragraph**).

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With respect to claim 14, as mentioned above, the modified method of Vollheim teaches a thermal treatment in between 1050-1100° F, or 566-593° C (**Welty, Jr., column 4, lines 64-68**).

With respect to claim 15, the modified method of Vollheim teaches a process for regenerating a catalyst, essentially by thermal treatment in the presence of oxygen (**Welty, Jr., claim 1**) or oxygen-containing gas, specifically in the presence of air (**Welty, Jr., column 4, lines 59-68**).

With respect to claim 16, the modified method of Vollheim teaches a process where the thermal treatment consists in a residence in a reactor vessel (**Welty, Jr., Figure 1, and column 4, lines 13-15**). This is a functional equivalent of a stove, which is defined an enclosed heated space. A reactor vessel would then, in fact, be a stove.

With respect to claim 17, Vollheim teaches a process where acetylene, from dehydrochlorination of 1,2-dichloroethane (DECa), was selectively hydrogenated to C<sub>2</sub>H<sub>4</sub> over a fixed bed Pd-SiO<sub>2</sub> catalyst of low porosity with a gas mixture over 99.5% HCl, where processed gases were suitable for recycling and the catalyst was very easily regenerated (**Abstract**). The process of Vollheim is the same as recited (other than the specifics of the regeneration, which occurs after the process anyway), and thus, it would be expected to inherently include the same type of contamination as applicant's process.

With respect to claim 19, Vollheim discloses the catalytic metal (Pd) in the catalyst being 0.1-0.2% by weight of the catalyst (**pg 2, middle, and translation, pg 3, middle**).

With respect to claim 20, Vollheim discloses a support with a BET surface area of less than 5 m<sup>2</sup>/g, a pore volume below 0.01 mL/g, and a particle size of above 0.3 mm (**pg 3, second**

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**paragraph, and translation, pg. 2, third paragraph).** Such a catalytic metal layer would be present inherently by the disclosure of Vollheim's support and the amount of catalytic metal included. Furthermore, **MPEP 2144.05 [R-5] Obviousness of Ranges** states, "In the case where the claimed ranges 'overlap or lie inside ranges disclosed by the prior art' a prima facie case of obviousness exists."

With respect to claim 21, Vollheim discloses a support with a BET surface area of less than 5 m<sup>2</sup>/g and a particle size of above 0.3 mm (**pg 3, second paragraph, and translation, pg. 2, third paragraph**). Furthermore, **MPEP 2144.05 [R-5] Obviousness of Ranges** states, "In the case where the claimed ranges 'overlap or lie inside ranges disclosed by the prior art' a prima facie case of obviousness exists."

With respect to claim 22, Vollheim discloses a catalyst of silica (gravel-form) with a preferably 4-5 mm diameter, preferably 0.12-0.18% Pd supported, and having a BET surface area of less than 5 m<sup>2</sup>/g (**pg 3, second and fifth paragraph, and translation, pg. 2, third and seventh paragraph**).

With respect to claim 23, the modified method of Vollheim discloses such a limitation, as per the combination above with respect to claims 10-12 and 18 as well as the claim 22 teaching directly above (**Abstract**).

### ***Response to Arguments***

**5. Applicant's arguments filed on March 9<sup>th</sup>, 2009 have been fully considered but they are not persuasive.**

This action is being made non final because after further review of Vollheim (DE '153), this reference teaches the limitation of claim 13 (i.e. surface area) and thus the examiner has

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found that the Nguyen reference as applied in the previous rejection of claim 13 is not required anymore.

With regards to the teaching of Vollheim (DE '153), applicant has asserted that the spent catalyst of Vollheim cannot be regenerated. Furthermore, applicant sought out Degussa, the patent holder of DE '153, regarding the catalyst, inactivation through use, and possible regeneration. The letter states "no catalyst regeneration possible". With this, examiner disagrees and has supplied a machine translation of the DE '153. Furthermore, examiner has translated several portions of the DE '153 text, and found that Vollheim does include a teaching of regenerating the spent catalyst (See pg. 5 of DE '153, second paragraph, first sentence – Regeneration of a fixed bed catalyst spent in the invention procedure is economically worthwhile and technically light to carry out). Also, in table 1, example 2 on pg. 9, next to *Regenerierbarkeit* (Regenerator), Vollheim states *leicht möglich*, or possible. Hence, Vollheim does include the teaching and renders argumentation not persuasive. See translation for more evidence.

With regards to the inclusion of the Welty reference, applicant first asserts that "the fact that thermal treatment has been used to regenerate other types of spent catalysts does not affect the patentability of the present invention." This is faulty, as one having ordinary skill in the art at the time the invention was made would have the knowledge, shown through various prior art references, that thermal treatment can regenerate spent catalysts and thus apply it to the current situation. In response to applicant's argument that Welty is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977

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F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, though Welty discloses a dehydrogenation catalyst in addition to several other catalysts, such catalysts and prior art are absolutely in the field of applicant's endeavor in terms of catalyst regeneration.

With regards to applicant's assertion of long felt but unsolved needs, examiner disagrees for the reasons above with respect to the Vollheim reference.

Furthermore, with regards to applicant's declaration, filed on March 9<sup>th</sup>, 2009, examiner acknowledges the declaration; however, it is not persuasive in showing evidence of patentability for the following reasons:

(1) sections 1-3 do not relate to the rejection at hand;

(2) sections 4-6 are not persuasive as Vollheim does include such a teaching of regenerable catalysts, as argued above;

(3) section 7 is not persuasive as Welty is selecting for its use of thermal treatment to regenerate a catalyst, not the specific teaching of the current catalyst as that is Vollheim's purpose, as argued above;

(4) sections 8-10 do not relate to the rejection at hand.

### ***Conclusion***

6. Claims 10-23 are rejected.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph V. Micali whose telephone number is (571) 270-5906.

The examiner can normally be reached on Monday through Friday, 7:30am to 5pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry A. Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph V Micali/  
Examiner, Art Unit 1793

/Michael A Marcheschi/  
Primary Examiner, Art Unit 1793